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SURVEY FOR SENSITIVE PLANT SPECIES  
ON BLM LANDS IN THE VICINITY OF LEMHI PASS, BEAVERHEAD COUNTY

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## INTRODUCTION

This report describes a botanical survey of BLM lands in the vicinity of Lemhi Pass in Beaverhead County, Montana. The main purpose of this study was to locate and survey populations of potential sensitive or watch species as proposed by the Bureau of Land Management (USDI Bureau of Land Management 1993). These are taxa identified by the State Office of the Bureau of Land Management as warranting sensitive or watch designation based on global rarity, state rarity, and threats.

Surveys to determine the location and size of populations of rare species are being conducted on public lands throughout the west as a result of the Federal Endangered Species Act of 1973 and subsequent Bureau of Land Management species conservation initiatives. Surveys provide baselines needed for the process of developing a list of "sensitive" plant species which occur on BLM lands in Montana and for addressing their conservation in the management planning process.

## THE STUDY AREA

Lemhi Pass is located on the Continental Divide in the Beaverhead Mountains along the Montana/Idaho state line. The area which was surveyed consists of land in seven sections just to the north of the pass. These are mostly uplands, but some bottomlands of Bloody Dick Creek are included.

The study area lies mostly to the north of the Lemhi Pass thorium district, where stratigraphy has been described in depth (Geach 1972, Staatz 1979). The basement rocks of the Beaverhead Range in this vicinity are Precambrian sedimentary rocks of the Belt series, but here, at least in the Shesher

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Creek drainage (Staatz 1979), these are mostly covered by Pleistocene glacial deposits. Although the study area lies mostly to the north of the thorium veins, a few old prospects - for unknown minerals - are located in the Kelly Creek drainage and on Pyramid Hill (see maps in Appendix A).

Vegetation includes coniferous forests, sagebrush grasslands, and wetlands. The forests, which originally covered most of the uplands, are dominated by *Pinus contorta* or *Pseudotsuga menziesii*. Characteristic understory species in these habitats include *Arnica cordifolia*, *Calamagrostis rubescens*, *Carex geyeri*, and *Vaccinium scoparium*. A large percentage of these forests have been clearcut; these early successional habitats were not surveyed. Sagebrush grasslands occur below timber and on south facing slopes, and are dominated by *Artemisia tridentata* with *Elymus spicatus* and/or *Festuca idahoensis*. The wetlands consist of narrow corridors along the mountain streams and more extensive floodplains along Bloody Dick Creek and Dutch Creek in section 23. These later are dominated by tall willows, including *Salix boothii*, *S. geyeriana*, and *S. lemmonii*, sedges (*Carex* spp.) and *Deschampsia cespitosa*. The habitats of the study area are subject to grazing by livestock and are home to a large herd of elk.

#### METHODS

Prior to fieldwork, the Biological Conservation Database maintained by the Montana Natural Heritage Program was queried for records of BLM potential sensitive and watch species known from the vicinity. This study area and the BLM lands in particular are not well known botanically, so the data search was augmented by information on other state species of special concern tracked by the Montana Natural Heritage Program (Heidel and Poole 1993). For purposes of this report, the term "sensitive" will be used loosely in reference to any currently identified or potentially sensitive species.

The data search produced records for four species, *Penstemon lemhiensis* with fourteen occurrences, *Mimulus primuloides* with two, and *Eriogonum ovalifolium* var. *nevadense* and *Gentianella simplex* with one each. *P. lemhiensis* was previously known from the study area in the northeast section of section 23 above Bloody Dick Creek (record # 35, see map in Appendix D). These species were the primary search targets.

The area was surveyed on June 25-29, 1993. Maps showing principle travel routes are presented in Appendix A. All habitat types, except clearcuts, were visited, but sagebrush habitats were given the most emphasis. Areas were traversed

on foot and lists were made of all vascular plant species which could be identified. Specimens were collected of taxa which could not be reliably identified in the field; the first set of these will be deposited at the herbarium at Montana State University (MONT). The floras used most often to key out plants were Dorn (1984) and Hitchcock and Cronquist (1973). Nomenclature in this report generally follows Dorn.

The historical site of *P. lemhiensis* in section 23 was intensely searched for flowering plants; vegetative plants were not recognized or searched for. Population sites of *P. lemhiensis* outside of the study area nearby along the Bloody Dick Creek road were also relocated when possible and briefly surveyed.

## RESULTS

A total of 151 species of vascular plants were identified (Appendix B). No sensitive species were found in the study area, although populations of *Eriogonum ovalifolium* var. *nevadense* and *Penstemon lemhiensis* were located nearby. The known site of a *P. lemhiensis* subpopulation in the study area could not be relocated, nor could the subpopulation just to the north in section 14 on Beaverhead National Forest. It cannot be determined at this time whether *Penstemon lemhiensis* is extirpated or nonflowering in the study area.

The *P. lemhiensis* populations which were found outside the study area included two relocated occurrences (records #29 and #41) along Bloody Dick Creek, in addition to a possible new location. The number of flowering individuals was lower than last reported (1989 and 1990) for both known subpopulations and only two of the four subpopulations reported for #29 in 1989 could be relocated.

It is noted that populations of *Penstemon lemhiensis* elsewhere in Beaverhead County which were monitored also had very few flowering plants in 1993. This may explain the apparent disappearance of the population on BLM land in section 23. It is not known if this population is extirpated, or if it consisted of only vegetative plants in 1993. This species should be watched for in the future at this site and in other sagebrush habitats on these lands, all of which appear to be potential habitat. The possible new occurrence consisted of a single plant found just outside the study area on private land in section 24. This plant was found, then lost before it could be positively identified. It was in fruit, at a more mature stage than plants in the other populations. The reason it is thought to be *P. lemhiensis* is that no other species of *Penstemon* known from the area are as large. The plant was growing on a south facing slope in a

sagebrush community which was heavily disturbed by a large burrowing animal (badger?). The very warm microclimate of this site may explain the advanced phenology of the plant. *P. lemhiensis* may occupy early successional habitat that includes disturbance sites such as roadside cutbanks. An Element Occurrence Record printout for this population and a map showing this and previously reported sites are included in Appendix C and D respectively.

*Penstemon lemhiensis* is proposed as sensitive by the BLM (USDI Bureau of Land Management 1993). Currently, the species is included in Category 2 of the U.S. Fish and Wildlife Service Notice of Review (USDI 1993), under consideration for listing as a threatened species pending data on vulnerability and threats to support listing. The species is also listed as sensitive by the U. S. Forest Service (Lesica and Shelly 1991).

The previously documentation and potential persistence of *P. lemhiensis* in the Lemhi Pass vicinity provide basis for considering potential impacts to this species if significant changes in land use are proposed. In addition, road crews should be familiar with the species so that damage to the plants by spraying and grading operations can be avoided.

The population of *Eriogonum ovalifolium* var. *nevadense* was found on the same hill as the lone *Penstemon* in section 24. This small population was growing in stony clay in a *Artemisia tridentata*/*Festuca idahoensis* habitat type. Large populations of this taxon were also seen nearby in the vicinity of Horse Prairie. Surveys throughout Beaverhead County in 1993 have shown that *E. ovalifolium* var. *nevadense* is common and does not have a proposed BLM status. It has been recommended for dropping from the state species of special concern (Vanderhorst and Lesica 1994).

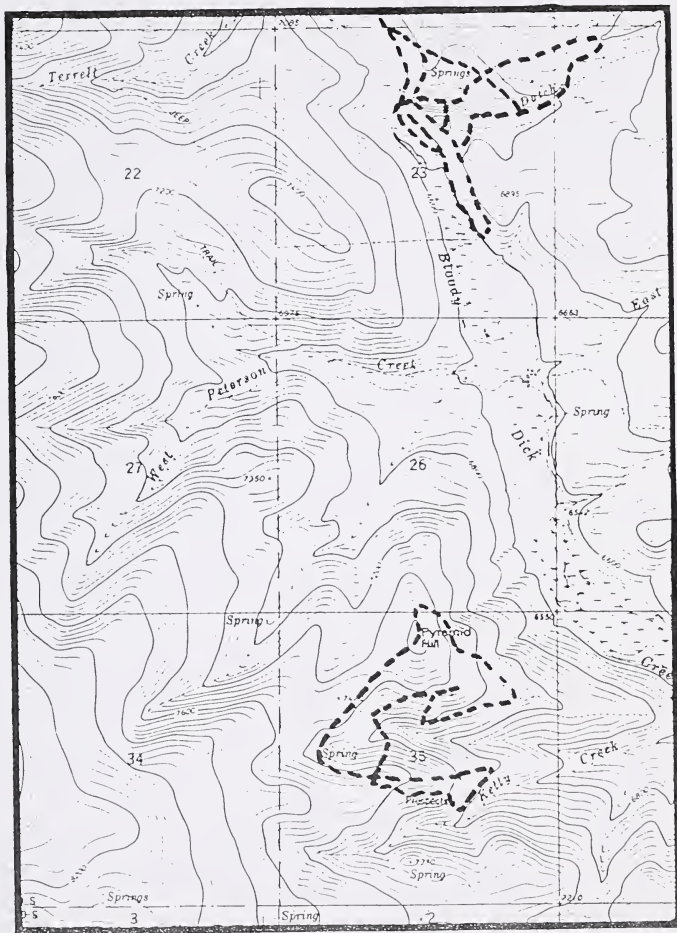
It is unlikely that the two wetland sensitive species targets, *Gentianella simplex* and *Mimulus primuloides*, would have been recognized at the June date of this survey. The habitats in the study area are probably not suitable for either of these, which are known from somewhat higher elevations in wet meadows and seep areas, but their occurrence along the creeks is not impossible. In general, botanical surveys of wetlands are best conducted at a late date in the season, since phenology is delayed by the temperature effects of water; many wetland species must be mature before they can be reliably identified. A late season survey of the BLM wetlands along Bloody Dick Creek in section 23 may be warranted.

#### LITERATURE CITED

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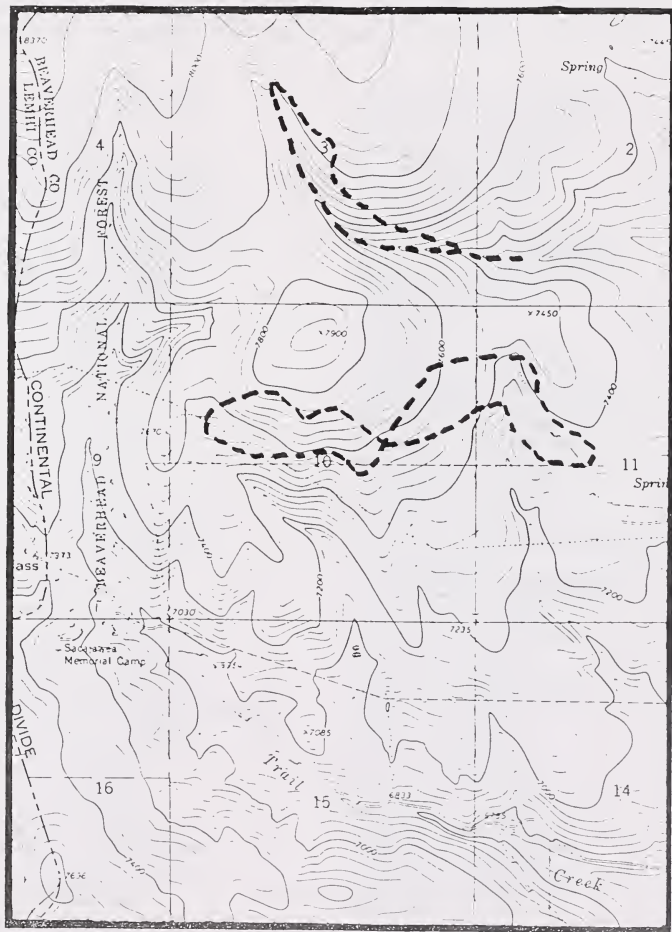


APPENDIX A. Maps showing principle survey routes.



U.S.G.S. Kitty Creek Quadrangle (7.5')  
(92% original scale)





U.S.G.S. Lemhi Pass Quadrangle (7.5')

APPENDIX B. List of vascular plant species identified on BLM and adjacent lands in the vicinity of Lemhi Pass. 151 total. Nomenclature follows Dorn (1984). Taxa in bold type were collected, specimens will be deposited at MONT.

Achillea millefolium	Eriogonum umbellatum
Agastache urticifolia	Erythronium grandiflorum
Agoseris glauca	Festuca idahoensis
Alnus incana	Fragaria virginiana
Alopecurus pratensis	Fraseria speciosa
Anaphalis margaritacea	<b>Galium bifolium</b>
<b>Androsace filiformis</b>	Galium boreale
Androsace septentrionalis	Gayophytum racemosum
Antennaria anaphaloides	Gayophytum ramosissimum
<b>Antennaria racemosa</b>	Geranium viscosissimum
Antennaria microphylla	Geum macrophyllum
Arabis drummondii	Geum triflorum
Arabis holboellii	Juncus sp.
<b>Arenaria congesta</b>	Juniperus communis
Arnica cordifolia	Hackelia floribunda
Arnica fulgens	Haplopappus lanuginosus
Artemisia frigida	Helianthella uniflora
Artemisia tridentata	Heracleum sphondylium
Astragalus miser	Heuchera cylindrica
Balsamorhiza sagittata	Heuchera parvifolia
Bromus anomalus	Hydrophyllum capitatum
Bromus tectorum	Koeleria macrantha
Calamagrostis rubescens	Lewisia rediviva
Camelina microcarpa	Linanthus septentrionalis
Capsella bursa-pastoris	Linum lewisii
Carex geyseri	<b>Lithophragma parviflorum</b>
<b>Carex nebrascensis</b>	Lithospermum ruderales
Carex utriculata	Lomatium ambiguum
Castilleja lutescens?	Lomatium triternatum
Castilleja miniata	Lupinus lepidus
Castilleja pallescens	Lupinus leucophyllus
Chimaphila umbellata	Lupinus polyphyllus
Chrysothamnus viscidiflorus	Lupinus wyethii
Claytonia lanceolata	Mahonia repens
Collinsia parviflora	Melica spectabilis
Collomia linearis	Mimulus guttatus
Crepis acuminata	Mertensia ciliata
Crepis modocensis	Mertensia oblongifolia
Delphinium bicolor	<b>Microseris nutans</b>
<b>Deschampsia cespitosa</b>	Microsteris gracilis
Dodecatheon conjugens	Monolepis nuttalliana
<b>Draba nemerosa</b>	Nemophila breviflora
Elymus cinerius	Oenothera flava
Elymus spicatus	Oxytropis lagopus
Epilobium ciliatum	Osmorhiza occidentalis
Erigeron compositus	<b>Pedicularis contorta</b>
<b>Eriogonum flavum</b>	Pedicularis groenlandica
Eriogonum ovalifolium	Penstemon aridus

**Zigadenus venenosus**

Penstemon lemhiensis  
Penstemon procerus  
Phacelia franklinii  
Phacelia heterophylla  
Phacelia linearis  
Phlox longifolia  
Picea engelmannii  
Pinus contorta  
Pinus flexilis  
Poa sp.  
Polygonum douglasii  
Populus tremuloides  
Potentilla diversifolia  
Potentilla fruticosa  
Potentilla glandulosa  
Potentilla gracilis  
Prunus virginiana  
Pseudotsuga menzeisii  
Purshia tridentata  
**Ranunculus cymbalaria**  
Ranunculus unciniatus  
Ribes lacustre  
Rosa woodsii  
Rubus idaeus  
Rumex acetosella  
Salix boothii  
Salix geyeriana  
Salix lemmonii  
Saxifraga odontoloma  
**Saxifraga oregana**  
Sedum lanceolatum  
Senecio crassulus  
Senecio serra  
Senecio triangularis  
Spiraea betulifolia  
Stellaria crassifolia  
Stipa nelsonii  
Symphoricarpos sp.  
Taraxacum laevigatum  
Thermopsis montana  
Thalictrum occidentale  
Thlaspi arvense  
Tragopogon dubius  
**Trifolium longipes**  
Trollius laxus  
Urtica dioica  
Vaccinium scoparium  
Valeriana dioica  
Valeriana sitchensis  
Veronica americana  
Veronica serpyllifolia  
Viola adunca  
Viola palustris  
Viola purpurea

APPENDIX C. Element Occurrence Record printout for *Penstemon*  
*lemhiensis*.

MONTANA NATURAL HERITAGE PROGRAM  
Element Occurrence Record

Scientific Name: PENSTEMON LEMHIENSIS  
Common Name: LEMHI BEARDTONGUE

Global rank: G3 Forest Service status: SENSITIVE  
State rank: S2 Federal Status: C2

Element occurrence code: PDSCR1L3NO.035  
Element occurrence type:

Survey site name: DUTCH CREEK  
EO rank: C  
EO rank comments: SMALL ROADSIDE POPULATION.

County: BEAVERHEAD

USGS quadrangle: KITTY CREEK

Township: Range: Section: TRS comments:  
009S 015W 14 SW4; 23 NE4

Precision: S  
Survey date: 1989-06-29 Elevation: 6760 -  
First observation: 1989-06-29 Slope/aspect: 0-35% / SW  
Last observation: 1993-06-28 Size (acres): 12

Location:  
BLOODY DICK CREEK RD., CA. 0.25 MILE NORTH AND 0.3 MILE SOUTH OF DUTCH CREEK.

Element occurrence data:  
NO PLANTS FOUND IN 1993. CA. 30 PLANTS IN 2 SUBPOPULATIONS IN 1989.

General site description:  
ROADSIDE POPULATIONS IN ROCKY LOAM SOILS, WITH ARTEMISIA TRIDENTATA AND FESTUCA IDAHOENSIS.

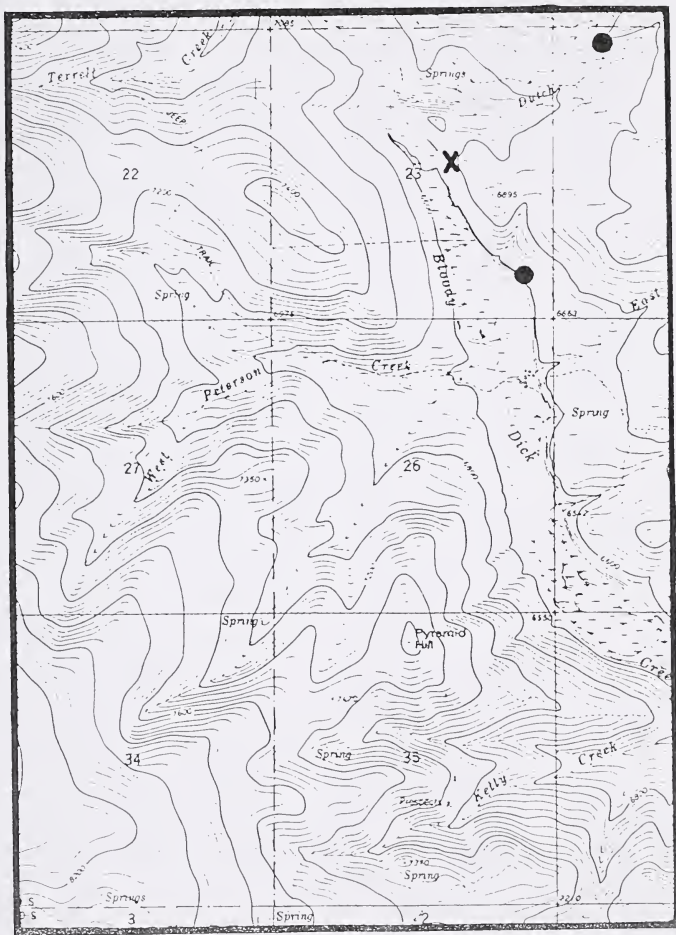
Land owner/manager:  
BEAVERHEAD NATIONAL FOREST, DILLON RANGER DISTRICT  
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:  
NO PLANTS FOUND IN LOCATION BY VANDERHORST, 1993.

Information source: VANDERHORST, J. 1993. [MTNHP FIELD SURVEYS CONDUCTED AT LEMHI PASS FOR THE BUREAU OF LAND MANAGEMENT.]

Specimens: SCHASSBERGER, L. A. (302). 1989.

APPENDIX D. Map showing locations of the new record for *P. lemhiensis* (S 24) and previously known populations (S 23). Dots indicate where plants were found by this survey. The X indicates the location of record # 35, which could not be relocated.



USGS Kitty Creek Quadrangle (7.5')  
(92% original scale)





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